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Mpoxic Acute Generalized Peritonitis on Sigmoidal Perforation: A Case Report from the DRC

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Abstract

Acute generalized peritonitis complicating colonic perforation due to Mpox infection is a rare complication not reported to our knowledge. Clinical features include generalized rashes, infectious signs, and a distended painful abdomen. Management is medical-surgical. We report a case of a 38-year-old patient transferred to CTM/RD Congo for management of an acute surgical abdomen complicating Mpox Infection. Clinical examination on admission noted: fever, peritoneal facies, skin eruptions of different ages, ulcerated and necrotic crusts, and a distended and diffusely painful abdomen. An exploratory laparotomy revealed sigmoidal perforations. Perforated colitis, probably Mpoxic was selected as the cause of the acute generalized peritonitis.

Keywords

Mpox Infection, Colonic Perforation, Colostomy, DR Congo

1. Introduction

Peritonitis is a medical emergency. It is an inflammation of the peritoneum lining the abdominal cavity, caused by an infectious or chemical attack [1]. Secondary peritonitis results from microbial dissemination following perforation of intra-abdominal hollow organs, or direct contamination of the peritoneum following surgery. These are the most frequent forms. The main symptoms of peritonitis are generalized abdominal pain associated with infectious signs of varying severity. Peritonitis is a life-threatening emergency requiring rapid medical and surgical management [1] [2]. Mpox is a public health emergency of international concern [3]. It is

caused by the monkeypox virus [4]. Monkeypox is currently endemic in Central Africa, including the DRC [5] [6]. The clinical picture is polymorphous [7]. Contamination depends on close physical contact. Mpox has been detected in semen samples, suggesting the potential for sexual transmission [7]. Supportive treatment helps alleviate the symptoms presented by patients [8]. Given the absence of an unequivocal clinical profile [5] [7] and the fact that, to the best of our knowledge, Acute Generalized Peritonitis on colonic perforation is not reported among the complications of Mpox, we report a case of Acute Generalized Peritonitis on Mpox sigmoidal perforation in a 38-year-old patient followed at the CTM in the DRC.

We aim to demonstrate the existence of this complication in our environment, despite its extreme rarity and short-term outcome with a guarded prognosis, to contribute to the expansion of science.

2. Case Presentation

This is a 38-year-old patient transferred to the CTM for treatment.

In his history, we note that he is a single father of several children; and a known alcoholic; he is neither diabetic nor living with HIV. Nor does he have a history of chronic inflammatory bowel disease.

He is a traveler who, three weeks in advance, noticed the appearance of rashes on his penis, followed by fever a few days after occasional unprotected sex with a sex worker. He self-medicated with amoxicillin, paracetamol, and NSAIDs. On the fourth day, rashes appeared all over the body, and on the eleventh day, genital wounds were treated at home with Dakin solution. The onset of abdominal distension two weeks after the rash, and the cessation of fluids and gases, prompted his friends to take him to the CTM via a general referral hospital. Clinical examination revealed: -A lucid, asthenic, emaciated patient with a weight of 58 kg for a height of 182 Cm, *i.e.*, a BMI of less than 18, enophthalmos, tachycardia at 110 bpm, polypnoea at 36 cpm, fever at 38˚C, SaO_2 at 92%AL.

-A distended and immobile abdomen, with skin eruptions of different ages that are also found on the rest of the body, generalized defensiveness, disappearance of pre-hepatic dullness, and auscultatory silence (**Figure 1**).

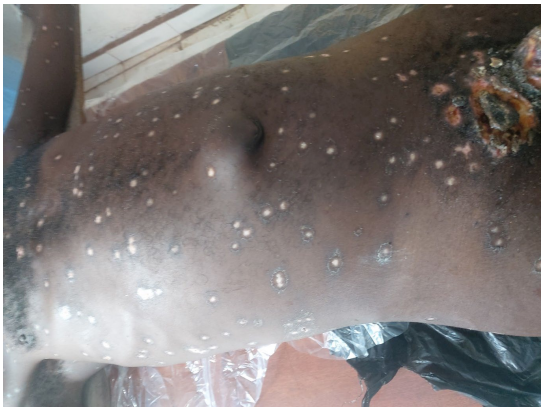

Figure 1. Abdomen distended, immobile, umbilicus unfolded, skin eruptions of different ages all over the body.

-Necrotic genital wounds.

-Painful Douglas cul de sac.

-Severe dehydration.

The diagnosis of acute generalized peritonitis, probably due to digestive perforation complicated by severe dehydration/Mpoxic infection, was retained.

The haemogram revealed a hyperleukocytosis of 15M elements/Ch, predominantly neutrophilic at 85%, and a sedimentation rate of elevated to 89 mm at the first hour, hemoglobin low at 10.7 g%, casually normal blood glucose at 167 mg/dl, creatinine elevated to 2.4 mg/dl, urea elevated to 54 mg/dl, HIV serology negative.

Blank radiography was not available.

The nasogastric tube yielded approximately 2L of stasis fluid (**Figure 2**). Hourly diuresis was estimated at 30 ml/H.

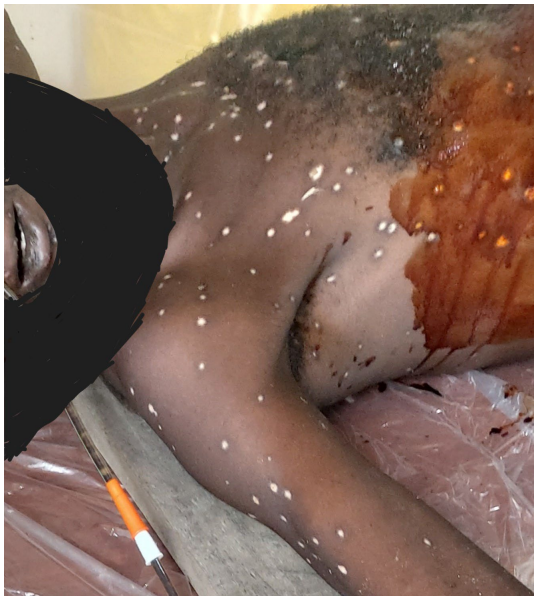

Figure 2. Dehydrated patient, nasogastric tube bringing back stasis fluid.

Resuscitation consisted of crystalloids, antibiotics, and a PPI.

Once operative conditions were met, in the operating theatre under general anesthetic with orotracheal intubation, through a median supraumbilical incision then enlarged to subumbilical, we discovered a stercoral effusion estimated at around 2L after aspiration, fibrin deposition on the coves, two openings on the antimesenteric edge of the sigmoid colon separated by a healthy loop bridge of about 0.5 mm, one of which was oval, about 3/2 cm in diameter, with a sclerotic edge and the other punctiform (**Figure 3**).

Peritoneal fluid was sampled for culture and PCR, the results of which revealed numerous Gram-negative bacteria after staining, klebsiella oxytoca by the seminar method, and orthopoxvirus.

Resection of the perforated loop, peritoneal lavage, shotgun colostomy, and drainage of the Douglas cul de sac was performed, followed by staged closure of

the abdominal cavity. The patient was placed in the intensive care unit for proper monitoring.

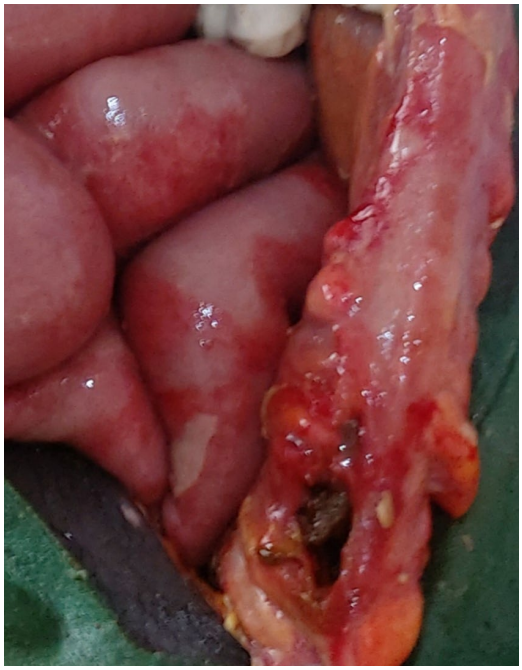

Figure 3. Pertuis of the sigmoid colon and fibrin on the coves.

Histopathological analysis of the biopsy revealed perforated subacute colitis complicated by peritonitis.

3. Discussion

We describe the clinic of a patient with Mpox infection during the current 2024 epidemic followed at the CTM/RDC who presented during the course of his illness with acute generalized peritonitis/intestinal perforation as a complication of Mpox infection. Management consisted of an exploratory laparotomy to visualize colonic perforation, peritoneal lavage and colostomy. Acute generalized peritonitis is often secondary to perforation of a hollow organ of the digestive tract. It ranks third in digestive surgery emergencies after appendicitis. Its severity is dictated by the fact that it provokes an inflammatory cascade caused by the production of pro-inflammatory cytokines, leading to the production of secondary mediators such as lipids, peptides, amines and globulins. These secondary mediators are at the root of hypercoagulability due to plasminogen activator inhibition, disorders of vascular permeability and glymoregulation, a leukopenia, thrombocytopenia, hemorrhagic necrosis…

The uncontrolled activation of cytokines will thus lead to multi-visceral failure syndrome [2]. Our patient, who had no history of chronic inflammatory disease, was presented with a sigmoid colon perforation during his Mpox infection, the mechanism of which remains unknown, and which was the cause of his peritonitis.

Monkeypox orthopoxvirus clade 1 is generally responsible for disease in the Congo Basin, with a case-fatality rate of 1% - 12% [5]. It has a specific tropism for cells of the gastrointestinal tract: stomach, small intestine, colon, pancreas, peritoneal membrane (mechanism unknown). Its preferential localization in our patient's sigmoid colon could explain the onset of localized inflammatory colitis, with the formation of granulomas whose fall would underline intestinal perforation, the cause of generalized acute peritonitis. Similarly, similar to other viruses such as Ebola, viruses can cause visceral cell dysfunction, platelet damage and coagulopathy, ultimately leading to intravascular coagulation and hemorrhage [9] [10], which may explain tissue ischemia and necrosis.

Extreme ages, pregnant women and immunocompromised individuals, including those with uncontrolled HIV infection, represent the higher risk groups for progression to severe Mpox disease in African countries [7].

Our patient was 38 years old, HIV serologically negative, but his alcoholism, undernutrition with a BMI below 18 and NSAID use could explain the severity of his illness. Alcohol is an immunosuppressant, increasing susceptibility to infection by reducing the inflammatory response and altering the production of certain cytokines. In addition, alcohol indirectly induces immunosuppression through its hepatic toxicity [11].

Undernutrition impairs cellular immunity and many other processes, notably phagocytosis and humoral immunity. In vivo, NSAIDs can inhibit polynuclear adhesion, thereby impairing phagocytosis and inhibiting the bactericidal capacity of macrophages, and even significantly reducing the patient's defences against infection [11].

The clinical course of monkeypox varies according to the epidemic [7] [8]. The common symptoms of monkeypox are a rash that can last from two to four weeks. They begin with a rash, followed by fever, headache, muscle aches, back pain, lack of energy and swollen lymph nodes (adenopathy) [5]. Some people develop inflammation inside the rectum (proctitis), which can cause intense pain, as well as inflammation of the genitals, which can cause difficulty in urinating.

In addition to the progressive signs of Mpox infection, our patient was presented with signs of acute generalized peritonitis due to digestive perforation, including infectious signs and diffuse painful abdominal bloating.

Monkeypox is diagnosed on the basis of suspected epidemiological and clinical findings and confirmed by nucleic acid amplification tests (NAATs), such as real-time or conventional PCR tests.

Our patient's PCR remained positive in all samples (crusts exudate and peritoneal secretion). Culture of peritoneal secretions revealed several gram-negative bacteria and klabtiella oxytoca, the contaminating germs. Histopathology of the perforated portion revealed subacute perforated colitis.

The approach to the clinical management of simian orthopoxvirosis includes both general supportive care and the use of antivirals active against the simian orthopoxvirosis virus.

In addition to symptomatic treatment of Mpox, resuscitation with intravenous fluids and antibiotic therapy, our patient underwent surgical management, which revealed a colonic perforation as the cause of his Acute Generalized Peritonitis and performed a peritoneal cleansing and colostomy.

Serious complications of monkeypox infections include bronchopneumonia, septicemia, eye infection, neurological manifestations, myocarditis, epiglottitis [9], peritonsillar abscess [5], rectal wall perforation with associated abscess in patients with rectitis [4], and hemophagocytic lymphohistiocytosis.

Our patient was presented with intestinal perforation due to perforated subacute colitis of the sigmoid colon as a complication of his Mpox infection.

4. Conclusion

From this clinical observation, it is clear that Mpox infection due to clade I has a very high probability of reaching the gastrointestinal tract. Mpox virus-induced intestinal granulomas can lead to intestinal perforation, resulting in acute generalized peritonitis. Management is medico-surgical. The prognosis remains guarded.

Consent

No written consent was obtained from the patient, as no identifiable patient data is included in this case report.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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